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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,081	12/27/2001	Tsuneo Kanda	1232-4807	8482

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EXAMINER

MATHEWS, ALAN A

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,081

Applicant(s)

KANDA, TSUNEO

Examiner

Alan A. Mathews

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MW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 17-35 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s). <u>10/03</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4 & 9</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group III in Paper No. 7 is acknowledged. The traversal is on the ground(s) that undue diverse searching should not be required. This is not found persuasive because the methods of the claims of Groups I and II would require an extensive search in many subclasses of class 430.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

1. The drawings are objected to because numerals "1" and "2" in figures 6 and 7 do not correlate with numerals "1" and "2" on lines 6-24 of page 17 and lines 7-27 of page 21 of the specification. Furthermore, numerals "1" and "2" in figures 6 and 7 do not correlate with numerals "1" and "2" in figure 1. It appears that numerals "1" and "2" are reversed in both figures 6 and 7. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 22, it is not clear what is meant by “the adjusting mechanism reduces a correction amount for a spherical aberration ---“. In particular, the word “reduces” in the context of the claim does not appear to correctly describe the invention.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 17-34 are rejected under 35 U.S.C. 102(e) as being anticipated by the European Patent Application Publication EP 1 158 361 A1 (cited on Applicant's PTO-1449). Figures 2 and 7, and page 16, lines 9-25, disclose a mask stage RST for installing a mask (reticle) 1 which comprises a transparent member 3 at a side of a surface of a base 1 with a pattern IP formed on the surface. The illumination optical system is element 12 and the projection optical system is element PL. Figures 12A-12E disclose working the surface of transmitting plate 3 to correct for

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a change in an optical path by the transparent member (see page 13, paragraph # 71, and page 19, paragraph # 101). With respect to claim 18, page 12, paragraph # 66, discloses using exposure light of 200 nm or shorter wavelength. With respect to claim 19, page 16, paragraph # 89, discloses use of an F₂ laser light source. With respect to claims 20 - 23, page 16, paragraph # 93, discloses correcting spherical aberrations and using telecentric optical systems. With respect to claim 25, the mechanical process is the grinding and polishing. With respect to claim 26, element 3 is the frame. With respect to claims 27 and 28, page 10, paragraph # 58, discloses making the transparent member 3 out of quartz or fluorite. With respect to claims 32 and 34, page 13, paragraph # 71, discloses correction of deflection cause by the plate's own weight, which is the "transformation of the transparent member".

5. Claims 17-24, 26 – 30, and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Shiraishi (U. S. Patent No. 6,627,365). Figure 2 and column 8, lines 15-21, disclose a reticle (mask) stage RST for installing reticle (mask) 1. Figure 1B and column 5, lines 52-67, disclose that the mask includes a transparent member 3 at a side surface of the base 1 and a pattern IP on base 1. The correction part includes moving mechanism 18A and lens 18B (see column 9, lines 42-67, and column 10, lines 1-9. Figure 2 and column 8, lines 22-46, discloses an illumination optical system 12 and a projection optical system PL. With respect to claims 18 and 19, column 7, lines 10-22, disclose using light having a wavelength of 193nm from an ArF laser. With respect to claims 20 and 21, column 4, lines 54-58, disclose a mechanism for adjusting a spherical aberration of the projection optical system. With respect to claim 23, column 8, lines 35-37, disclose the use of a both side telecentric projection optical system PL. With respect to

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claim 24, column 12, lines 6-24, disclose aspherical surfaces. With respect to claims 27 and 28, column 6, lines 20-41 disclose the use of quartz for the transparent member 3. With respect to claim 32, column 14, lines 1-11, disclose correcting aberrations due to deflection caused when the reticle 1 is placed on the reticle stage. The deflection is the “transformation of the transparent member”.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 17- 19, 26-30, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki (U. S. Patent Application Publication 2001/0004508 A1) in view of Shiraishi (U. S. Patent No. 6,627,365). Shirasaki '508 discloses in figure 1 a mask or base 5 and a transparent member 1 on a side surface of base 5. Page 1, paragraph 12, discloses a pattern on the base 5. The correction part includes element 9 in figure 2 (see page 3, paragraph # 47 and page 5, paragraph # 77 and page 6, paragraph # 86). Or the correction could be making the transparent member convex so that deflection by the transparent member's own weight will cause the transparent member to become parallel to base 5 (see figure 6 and page 5, paragraphs # 66 and 67). With respect to claims 18 and 19, page 2, paragraph # 15 discloses the use of light having a

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wavelength of less than 200nm to illuminate the mask and the use of ArF or F₂. With respect to claim 26, element 3 is the frame. With respect to claims 27 and 28, page 2, paragraphs 16, and page 5, paragraph # 74, and page 6, paragraph # 86 disclose the use of quartz or fluorite-doped quartz. With respect to claim 32, the deflection by the transparent member's own weight would be the transformation of the transparent member. Thus, Shirasaki '508 discloses the invention except for specifically disclosing the mask stage and the illumination optical system and the projection optical system (although Shirasaki '508 does disclose that his device is used in photolithography). Shiraishi '365 discloses in figure 2 the old and well known concept of using a pellicle with elements 1, 2, and 3 in a photolithographic apparatus having a mask stage RST and an illumination optical system 12 and a projection optical system PL. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide Shirasaki '508 with a mask stage and an illumination optical system and a projection optical system in view of Shiraishi '365 for the purpose of having a complete apparatus to make integrated circuit and for the reasons taught by the combination of pellicles and projection exposure apparatus as taught by both the primary and secondary references.

Conclusion

8. Claims 1-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 7.

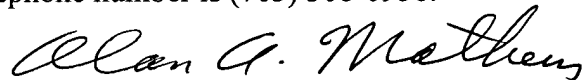
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9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents on Applicant's PTO 1449 are cited for the same reasons Applicant cited them in his INFORMATION DISCLOSURE STATEMENT. The patent to Nishi et al. (U. S. Patent No. 5,739,899) is cited to show correction of writing errors on reticles (see column 13, lines 29-31, and column 14, lines 7-14). The patent to Nishi (U. S. Patent No. 6,522,386) is cited to show correction plates G1 and G3 in figure 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan A. Mathews whose telephone number is (703) 308-1706. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on (703) 308-2847. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Alan A. Mathews
Primary Examiner
Art Unit 2851

AAM